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MEMORANDUM

TO: Sarah Fisher [SFisher@arcadis-us.com]

REF. NO.: 017307-027029

FROM: Kathleen Willy/bjw/34

DATE: July 6, 2011
REVISION: July 7, 2011

CC: Susan Scrocchi

E-Mail and Hard Copy If Requested

RE: **Data Quality Assessment and Validation**
Vermont Street Investigation
Allison Transmission
Indianapolis, Indiana
June 2011

INTRODUCTION

The following details a quality assessment and validation of the analytical data resulting from the June 2011 collection of 27 samples including three quality control samples from the Allison Transmission Site in Indianapolis, IN. The sample summary detailing sample identification, sample location, QC samples, and analytical parameters is presented in Table 1. Sample analysis was completed at Pace Analytical Services, Inc. located in Indianapolis, IN (Pace), in accordance with the methodologies presented in Table 2. The analytical results are summarized in Table 3.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical method and the "National Functional Guidelines for Organic Data Review" (October 1999).

Full Contract Laboratory Program (CLP)-equivalent raw data deliverables were provided by the laboratory. The data quality assessment and validation presented in the following subsections were performed based on the sample results and supporting QA/QC provided.

SAMPLE QUANTITATION

The laboratory reported detected concentrations of volatile organic compounds (VOC) below the laboratory's method detection limit (MDL). The laboratory flagged these sample concentrations with a "J". These concentrations should be qualified as estimated (J) values unless qualified otherwise in this memorandum.

SAMPLE PRESERVATION AND HOLDING TIMES

Sample holding time periods and preservation requirements are presented in the method.

All holding times were met and the samples were received in good condition and properly preserved.

GAS CHROMATOGRAPHY/MASS SPECTROMETER (GC/MS) – CALIBRATION

Prior to analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the volatile organic compound (VOC) method requires the analysis of the specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Instrument tuning data were reviewed. Tuning compounds were analyzed at the required frequency throughout the VOC analysis period. All tuning criteria were met for the analyses, indicating proper optimization of the instrumentation.

INITIAL CALIBRATION – ORGANIC ANALYSES, GC/MS

To quantify compounds of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a minimum of a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range.

Calibration data were reviewed for all samples. Linearity of the calibration curve and instrument sensitivity were evaluated against the following criteria:

i) All relative response factors (RRFs) must be greater than or equal to 0.05.

ii) Percent relative standard deviation (%RSD) values must not exceed 30 percent or if linear regression is used, the correlation coefficient (R^2) value must be at least 0.990.

Initial calibration standards were analyzed as required and the data showed acceptable sensitivity and linearity.

CONTINUING CALIBRATION - ORGANICS, GC/MS

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) All RRF values must be greater than or equal to 0.05.

ii) Percent difference (%D) values must not exceed 25 percent.

Calibration standards were analyzed at the required frequency and the results met the above criteria for instrument sensitivity and linearity of response with the exception of some VOCs. Associated sample results have been qualified as estimated (see Table 4).

METHOD BLANK SAMPLES

Method blank samples are prepared from a purified sample matrix and are processed concurrently with investigative samples to assess the presence and the magnitude of sample contamination introduced during sample analysis. Method blank samples are analyzed at a minimum frequency of one per analytical batch and target analytes should be non-detect.

All method blank results were non-detect for the compounds of interest.

SURROGATE COMPOUNDS – ORGANIC ANALYSES

Individual sample performance for organic analyses was monitored by assessing the results of surrogate compound percent recoveries. Surrogate percent recoveries are reviewed against the laboratory developed control limits provided in the analytical report.

The surrogate recovery acceptance criteria were met for all samples indicating acceptable analytical efficiency.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES

To assess the long term accuracy and precision of the analytical methods on various matrices, MS/MSD percent recoveries and the relative percent difference (RPD) of the concentrations were determined. The organic MS/MSD percent recovery and RPD control limits are established by the laboratory.

MS/MSD analyses were performed at the proper frequency and all recoveries were acceptable.

LABORATORY CONTROL SAMPLE (LCS)

The LCS analysis serves as a monitor of the overall performance in all steps of the sample analysis and are analyzed with each sample batch. The LCS percent recoveries were evaluated against method and laboratory established control limits.

All LCS percent recoveries were within the laboratory control limits.

INTERNAL STANDARD (IS) SUMMARIES – ORGANIC ANALYSES

To correct for variability in the GC/MS response and sensitivity, IS compounds are added to all samples. All results are calculated as a ratio of the compound and associated IS response. Overall instrument stability and performance for VOC analyses were monitored using IS peak area and retention time (RT) data. The IS peak areas and RTs of the samples are required to meet the following criteria:

i) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated continuing calibration standard IS area counts.

ii) The RT of the IS must not vary by more than plus or minus 30 seconds from the associated continuing calibration standard.

A review of the IS data showed that the IS area counts and retention time data were within the acceptance criteria.

TARGET COMPOUND IDENTIFICATION

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to identification criteria established by the methods. The organic compounds reported adhered to the specified identification criteria.

TARGET COMPOUND QUANTITATION

The reported quantitation results and detection limits were checked to ensure results reported were accurate. No discrepancies were found between the raw data and the sample results reported by the laboratory.

FIELD QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Trip Blanks
Trip blanks are transported, stored, and analyzed with the investigative samples to identify potential cross-contamination of VOCs. Trip blanks were collected at the proper frequency, and all results were non-detect with the exception of a low concentration of chloroform. All associated samples results were non-detect and no qualification of the data was necessary.

Field Blanks
To assess the cleanliness of sample containers and the presence of field contamination, the field blank sample identified in Table 1 was collected and analyzed.

Field blank results were non-detect for the compounds of interest.

Field Duplicates
To assess overall analytical sampling and precision, field duplicates were collected and submitted "blind" to the laboratory for analysis as shown in Table 1.

All sample results outside estimated ranges of detection showed acceptable sampling and analytical precision.

SYSTEM PERFORMANCE

System performance between various QC checks was evaluated to monitor for changes that may have caused the degradation of data quality. No technical problems or chromatographic anomalies were observed which would require qualification of the data.

OVERALL ASSESSMENT

The data were found to exhibit acceptable levels of accuracy and precision based on the provided information and may be used with the qualifications noted.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

				Analysis/Parameters	
Sample ID	*Location ID*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*VOCs*	*Comments*
MW-1003-S3(060211)	MW-1003-S3	06/02/11	11:00:00 AM	X	MS/MSD
MW-0524-S2A(060211)	MW-0524-S2A	06/02/11	12:10:00 PM	X	
MW-0524-S2B(060211)	MW-0524-S2B	06/02/11	1:20:00 PM	X	
MW-0522-S2B(060211)	MW-0522-S2B	06/02/11	3:35:00 PM	X	
MW-0522-S2A(060211)	MW-0522-S2A	06/02/11	5:10:00 PM	X	
MW-0526-S2B(060611)	MW-0526-S2B	06/06/11	9:50:00 AM	X	
MW-0623-S2A(060611)	MW-0623-S2A	06/06/11	10:55:00 AM	X	
MW-0525-S2(060611)	MW-0525-S2	06/06/11	12:15:00 PM	X	
SB-64-1006(060611)	SB-64-1006	06/06/11	2:20:00 PM	X	
SB-64-1001(060611)	SB-64-1001	06/06/11	3:35:00 PM	X	
MW-1105(85-90)(060411)	MW-1105-S3/4	06/04/11	3:50:00 PM	X	
MW-1103-S3/4 (061311)	MW-1103-S3/4	06/13/11	11:45:00 AM	X	
MW-1102-S4 (061311)	MW-1102-S4	06/13/11	1:30:00 PM	X	
MW-1105-S3/4 (061311)	MW-1105-S3/4	06/13/11	2:50:00 PM	X	
MW-1101-S4(062211)	MW-1101-S4	06/22/11	12:05:00 PM	X	
FD-1(060211)-TP	MW-0524-S2A	06/02/11	8:00:00 AM	X	Field duplicate of sample MW-0524-S2A(060211)
EB-1(060211)-TP	-	06/02/11	1:40:00 PM	X	Equipment blank
TB-1(060211)-TP	-	06/02/11	8:00:00 AM	X	Trip blank
TB-1(060611)-TP	-	06/06/11	8:00:00 AM	X	Trip blank
TB-1 (061311)-TK	-	06/13/11	10:30:00 AM	X	Trip blank
TB-01(062211)-TP	-	06/22/11	12:00:00 PM	X	Trip blank

Notes:

VOCs Volatile Organic Compounds
MS/MSD Matrix spike/matrix spike duplcate

TABLE 2

SUMMARY OF ANALYTICAL METHODS
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

Parameter	*Method* [1]
TCL VOCs	SW-846 8260

Notes:

[1] "Test Methods for Solid Waste/Physical Chemical Methods", SW-846, 3rd Edition, September 1986 (with all subsequent revisions).

TCL Target Compound List.

VOCs Volatile Organic Compounds

TABLE 3A

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*MW-0522-S2A*	*MW-0522-S2B*	*MW-0524-S2A*	*MW-0524-S2A*	*MW-0524-S2B*	*MW-0525-S2*
	Sample ID:	*MW-0522-S2A(060211)*	*MW-0522-S2B(060211)*	*MW-0524-S2A(060211)*	*FD-1(060211)-TP*	*MW-0524-S2B(060211)*	*MW-0525-S2(060611)*
	Sample Date:	*6/2/2011*	*6/2/2011*	*6/2/2011*	*6/2/2011* *(Duplicate)*	*6/2/2011*	*6/6/2011*
Parameters	*Units*						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
2-Hexanone	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Acetone	µg/L	100 U	100 U	100 U	100 U	100 U	100 U
Benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromomethane (Methyl bromide)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ
Carbon disulfide	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon tetrachloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform (Trichloromethane)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 3A

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*MW-0522-S2A*	*MW-0522-S2B*	*MW-0524-S2A*	*MW-0524-S2A*	*MW-0524-S2B*	*MW-0525-S2*
	Sample ID:	*MW-0522-S2A(060211)*	*MW-0522-S2B(060211)*	*MW-0524-S2A(060211)*	*FD-1(060211)-TP*	*MW-0524-S2B(060211)*	*MW-0525-S2(060611)*
	Sample Date:	*6/2/2011*	*6/2/2011*	*6/2/2011*	*6/2/2011* *(Duplicate)*	*6/2/2011*	*6/6/2011*
Parameters	*Units*						
Volatile Organic Compounds (Cont'd.)							
Chloromethane (Methyl chloride)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	µg/L	100 U	100 U	100 U	100 U	100 U	100 U
Dibromochloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 UJ
Ethylbenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Isopropyl benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	µg/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 UJ
Methyl cyclohexane	µg/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Methyl tert butyl ether (MTBE)	µg/L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane (CFC-11)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trifluorotrichloroethane (Freon 113)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl chloride	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Xylenes (total)	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

TABLE 3A

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*MW-0526-S2B*	*MW-0623-S2A*	*MW-1003-S3*	*MW-1101-S4*	*MW-1102-S4*
	Sample ID:	*MW-0526-S2B(060611)*	*MW-0623-S2A(060611)*	*MW-1003-S3(060211)*	*MW-1101-S4(062211)*	*MW-1102-S4 (061311)*
	Sample Date:	*6/6/2011*	*6/6/2011*	*6/2/2011*	*6/22/2011*	*6/13/2011*
Parameters	*Units*					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 UJ	5.0 UJ	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 UJ	25.0 U
2-Hexanone	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Acetone	µg/L	100 U	100 U	100 U	100 U	100 U
Benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromomethane (Methyl bromide)	µg/L	5.0 UJ	5.0 UJ	5.0 U	5.0 UJ	5.0 U
Carbon disulfide	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon tetrachloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform (Trichloromethane)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	4.3 J

TABLE 3A

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*MW-0526-S2B*	*MW-0623-S2A*	*MW-1003-S3*	*MW-1101-S4*	*MW-1102-S4*
	Sample ID:	*MW-0526-S2B(060611)*	*MW-0623-S2A(060611)*	*MW-1003-S3(060211)*	*MW-1101-S4(062211)*	*MW-1102-S4 (061311)*
	Sample Date:	*6/6/2011*	*6/6/2011*	*6/2/2011*	*6/22/2011*	*6/13/2011*
Parameters	***Units***					
Volatile Organic Compounds (Cont'd.)						
Chloromethane (Methyl chloride)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	6.7	5.0 U
cis-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	µg/L	100 U	100 U	100 U	100 U	100 U
Dibromochloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	5.0 UJ	5.0 UJ	5.0 U	5.0 U	5.0 U
Ethylbenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Isopropyl benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	µg/L	50.0 UJ	50.0 UJ	50.0 U	50.0 U	50.0 U
Methyl cyclohexane	µg/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Methyl tert butyl ether (MTBE)	µg/L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U
Toluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane (CFC-11)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trifluorotrichloroethane (Freon 113)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl chloride	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Xylenes (total)	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

TABLE 3A

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*MW-1103-S3/4*	*MW-1105-S3/4*	*MW-1105-S3/4*	*SB-64-1001*	*SB-64-1006*
	Sample ID:	*MW-1103-S3/4 (061311)*	*MW-1105(85-90)(060411)*	*MW-1105-S3/4 (061311)*	*SB-64-1001(060611)*	*SB-64-1006(060611)*
	Sample Date:	*6/13/2011*	*6/4/2011*	*6/13/2011*	*6/6/2011*	*6/6/2011*
Parameters	*Units*					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 UJ
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
2-Hexanone	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Acetone	µg/L	100 U	100 U	100 U	100 U	100 U
Benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromomethane (Methyl bromide)	µg/L	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 UJ
Carbon disulfide	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon tetrachloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform (Trichloromethane)	µg/L	5.0 U	57.5	5.0 U	5.0 U	5.0 U

TABLE 3A

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*MW-1103-S3/4*	*MW-1105-S3/4*	*MW-1105-S3/4*	*SB-64-1001*	*SB-64-1006*
	Sample ID:	*MW-1103-S3/4 (061311)*	*MW-1105(85-90)(060411)*	*MW-1105-S3/4 (061311)*	*SB-64-1001(060611)*	*SB-64-1006(060611)*
	Sample Date:	*6/13/2011*	*6/4/2011*	*6/13/2011*	*6/6/2011*	*6/6/2011*
Parameters	*Units*					
Volatile Organic Compounds (Cont'd.)						
Chloromethane (Methyl chloride)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	µg/L	100 U	100 U	100 U	100 U	100 U
Dibromochloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 UJ
Ethylbenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Isopropyl benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	µg/L	50.0 U	50.0 UJ	50.0 U	50.0 UJ	50.0 UJ
Methyl cyclohexane	µg/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Methyl tert butyl ether (MTBE)	µg/L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane (CFC-11)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trifluorotrichloroethane (Freon 113)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl chloride	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Xylenes (total)	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Notes:

J - Estimated.

U - Not detected.

UJ - Not detected, estimated reporting limit.

TABLE 3B

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*Equipment Blank*	*Trip Blank*	*Trip Blank*	*Trip Blank*	*Trip Blank*
	Sample ID:	*EB-1(060211)-TP*	*TB-1(060211)-TP*	*TB-1(060611)-TP*	*TB-1 (061311)-TK*	*TB-01(062211)-TP*
	Sample Date:	*6/2/2011*	*6/2/2011*	*6/6/2011*	*6/13/2011*	*6/22/2011*
Parameters	*Units*					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
2-Hexanone	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Acetone	µg/L	100 U	100 U	100 U	100 U	100 U
Benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bromomethane (Methyl bromide)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon disulfide	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbon tetrachloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 3B

ANALYTICAL RESULTS SUMMARY
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

	Sample Location:	*Equipment Blank*	*Trip Blank*	*Trip Blank*	*Trip Blank*	*Trip Blank*
	Sample ID:	*EB-1(060211)-TP*	*TB-1(060211)-TP*	*TB-1(060611)-TP*	*TB-1 (061311)-TK*	*TB-01(062211)-TP*
	Sample Date:	*6/2/2011*	*6/2/2011*	*6/6/2011*	*6/13/2011*	*6/22/2011*
Parameters	*Units*					
Volatile Organic Compounds (Cont'd.)						
Chloroform (Trichloromethane)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	10.1
Chloromethane (Methyl chloride)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	µg/L	100 U	100 U	100 U	100 U	100 U
Dibromochloromethane	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane (CFC-12)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Ethylbenzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Isopropyl benzene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	µg/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Methyl cyclohexane	µg/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Methyl tert butyl ether (MTBE)	µg/L	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Methylene chloride	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane (CFC-11)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trifluorotrichloroethane (Freon 113)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl chloride	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Xylenes (total)	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Notes:

U - Not detected.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

Parameter	*Calibration Date*	*Compound*	*%D*	*Associated Sample ID*	*Qualified Sample Results*	*Units*
VOCs	06/23/11	Bromomethane	38	MW-1101-S4(062211)	5 UJ	µg/L
VOCs	06/23/11	Tetrachloroethene	30	MW-1101-S4(062211)	5 UJ	µg/L
VOCs	06/23/11	2-Butanone	30	MW-1101-S4(062211)	25 UJ	µg/L
VOCs	06/09/11	Bromomethane	31	MW-0525-S2(060611)	5 UJ	µg/L
				MW-0526-S2B(060611)	5 UJ	µg/L
				MW-0623-S2A(060611)	5 UJ	µg/L
				MW-1105(85-90)(060411)	5 UJ	µg/L
				SB-64-1001(060611)	5 UJ	µg/L
				SB-64-1006(060611)	5 UJ	µg/L
VOCs	06/09/11	Dichlorodifluoromethane	27	MW-0525-S2(060611)	5 UJ	µg/L
				MW-0526-S2B(060611)	5 UJ	µg/L
				MW-0623-S2A(060611)	5 UJ	µg/L
				MW-1105(85-90)(060411)	5 UJ	µg/L
				SB-64-1001(060611)	5 UJ	µg/L
				SB-64-1006(060611)	5 UJ	µg/L
VOCs	06/09/11	1,2-Dibromo-3-chloropropane	43	MW-0525-S2(060611)	10 UJ	µg/L
				MW-0526-S2B(060611)	10 UJ	µg/L
				MW-0623-S2A(060611)	10 UJ	µg/L
				MW-1105(85-90)(060411)	10 UJ	µg/L
				SB-64-1001(060611)	10 UJ	µg/L

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
VERMONT STREET INVESTIGATION
ALLISON TRANSMISSION
INDIANAPOLIS, INDIANA
JUNE 2011

Parameter	*Calibration Date*	*Compound*	*%D*	*Associated Sample ID*	*Qualified Sample Results*	*Units*
				SB-64-1006(060611)	10 UJ	µg/L
VOCs	06/09/11	1,2,4-Trichlorobenzene	35	MW-0525-S2(060611)	5 UJ	µg/L
				MW-0526-S2B(060611)	5 UJ	µg/L
				MW-0623-S2A(060611)	5 UJ	µg/L
				MW-1105(85-90)(060411)	5 UJ	µg/L
				SB-64-1001(060611)	5 UJ	µg/L
				SB-64-1006(060611)	5 UJ	µg/L
VOCs	06/09/11	Methyl acetate	41	MW-0525-S2(060611)	50 UJ	µg/L
				MW-0526-S2B(060611)	50 UJ	µg/L
				MW-0623-S2A(060611)	50 UJ	µg/L
				MW-1105(85-90)(060411)	50 UJ	µg/L
				SB-64-1001(060611)	50 UJ	µg/L
				SB-64-1006(060611)	50 UJ	µg/L
VOCs	06/10/11	Dichlorodifluoromethane	28	MW-0524-S2B(060211)	5 UJ	µg/L

Notes:

%D Percent Difference
UJ Not detected, estimated reporting limit.
VOCs Volatile Organic Compounds